was never intended for the purpose of provisioning unbundled network elements. When systems are used for purposes other than those intended in the original design, those systems need to be modified and/or refined to meet the new needs.

NONDISCRIMINATORY ACCESS TO OPERATIONS SUPPORT SYSTEMS

71. Even if Ameritech's proposed OSS interfaces were in a condition of operational readiness, that would not establish that Ameritech was actually providing AT&T and other CLECs with non-discriminatory access to its operations support systems. Ameritech must show more than that it is providing the CLECs with access to its operations support systems; it must show that the access being provided is nondiscriminatory.

72. To make this showing of nondiscriminatory access, the access provided by Ameritech must be monitored to show that Ameritech's interfaces actually provide the CLECs with access to its systems having an equivalent level of accuracy, reliability and timeliness as the access that Ameritech provides to its own customer service agents.

73. To establish that Ameritech is providing nondiscriminatory access to its operations support systems, a series of performance measurements and reporting mechanisms are needed. The appropriate measurement criteria and reporting mechanisms are addressed in the affidavit of C. Michael Pfau.

CONCLUSION

74. Ameritech has not established that it is providing nondiscriminatory access to CLECs to all of its operations support systems for both service resale and unbundled network elements.

Timothy M. Connolly

Information Systems Consulting Assignments

1991 to 1996

For a Tokyo-based telecommunications carrier -- evaluated customer billing, customer service, accounts receivable and collections systems for technical capacity and operations stability under three planning scenarios related to expansion of market share; provided recommendations, documentation and presentation to senior management team.

For South American joint venture partners -- performed due diligence evaluations of information technology facilities, software applications portfolios, staff and security systems; provided assessment reports to joint venture partners.

For a Middle-East telecommunications and financing company -- conducted systems evaluations and operational readiness evaluations in connection with market entry for credit/debit card calling services; provided traffic and revenue projections, determined technology requirements and security systems for card issuance and monitoring.

For a US-based long distance carrier -- evaluated and analyzed the carrier's five (5) year international expansion plane; developed the customer service operations plan and system acquisition and operations recommendations for the carrier's entry in the European resale market.

For a Canadian long distance carrier -- proposed the customer service and billing systems and operations requirements to support the carrier's expansion plan for entry in additional provinces; for network services migration to intelligent networks; for extension of services to residential customers

For a private Canadian-provincial carrier -- developed its long distance expansion business plan; produced detailed plans and schedules for network elements, back office systems, staffing, sales campaigns and market evaluation systems

For a California-based economic development authority -- designed and proposed acquisition alternatives for its on-line, Internet-supported international telecommunications and information systems platforms

For a San Francisco-based non-profit organization -- designed, developed and implemented its business plan, market development plan, financial plan, technology plan and telecommunications marketing technology requirements including telemarketing programs

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commission's own motion, to consider Ameritech Michigan's compliance with the competitive checklist in Section 271 of the Telecommunications Act of 1996	)))))	Case No. U-11104

AFFIDAVIT OF C. MICHAEL PFAU
ON BEHALF OF AT&T COMMUNICATIONS OF MICHIGAN, INC.

STATE OF ILLINOIS)
) ss.
COUNTY OF COOK)

I, C. Michael Pfau, being first duly sworn upon oath, do hereby depose and state as follows:

1. My name is C. Michael Pfau. My business address is 295 North Maple Avenue, Basking Ridge, New Jersey 07920.

2. I am employed by AT&T Corp., and I serve as Division Manager, Local Services Division Negotiations Support.

3. My responsibilities include helping to develop and communicate the business requirements to the regional teams negotiating with the Incumbent Local Exchange Carriers (ILECs). I also assist the regional teams in performing feasibility assessment of business arrangements offered by the ILECs.

4. I began my career in Bell of Pennsylvania, where I had various assignments in central office engineering, plant extension, circuit layout and regulatory operations. Just prior to divestiture, I moved to AT&T General Departments, where I was responsible for managing intrastate service cost models. My next assignment was in an AT&T regional organization responsible for regulatory implementation support of service and marketing plans within the five Ameritech states. I then moved to a headquarters position responsible for managing market research related to business communications services. Immediately prior to my current assignment, I worked within the product management organization, focusing upon private line data services.

5. I have a Bachelor of Science degree in Mechanical Engineering and a Masters Degree in Business Administration, both from Drexel University. In addition, I have a Professional Engineering License from the State of Pennsylvania.

SUBJECT OF STATEMENT

6. My testimony responds to Ameritech's claim that it will provide nondiscriminatory access to Ameritech's operations support systems (OSS), a subject addressed in the testimony of Ameritech witnesses Dunny, Mayer, Mickens and Rogers.

7. First, I will discuss the requirements for the efficient exchange of OSS information between Ameritech and competitors who resell Ameritech's local services or purchase unbundled network elements (UNEs). More specifically, I will discuss the requirements for the

electronic interfaces between AT&T and Ameritech's operations support systems that are necessary to permit effective competition to develop in the provision of local services.

8. I will then address how the interfaces proposed by Ameritech in this case for access to its operations support systems and databases do not meet those requirements because (1) CLECs cannot rely on Ameritech's interface specifications because they are still being revised, (2) several of the essential OSS interfaces which Ameritech claims to have deployed within the last month have never been used or tested by any CLEC, (3) testing of other OSS interfaces by AT&T has not produced satisfactory results, and (4) Ameritech has not demonstrated that its interfaces will provide parity of access to Ameritech's operations support systems.

9. Next, I will address certain deficiencies in the measurements proposed by Ameritech for determining whether Ameritech is actually providing nondiscriminatory access for resale services and for unbundled network elements.

OPERATIONS SUPPORT SYSTEMS

10. "Operations support systems" or "OSS" are the systems and databases that provide essential information and functionality required to perform the pre-ordering, ordering, provisioning, maintenance and repair, and billing functions for the sale or resale of telecommunications services.

11. "Pre-ordering" is the process of obtaining the necessary information to enable the carrier's customer service agent to place an order for telephone service. It encompasses

the interaction between the carrier and the customer from the point of initial contact up to the placement of an order for new service or modification of an existing service. Pre-ordering ordinarily takes place while the customer is "on the line." Pre-ordering includes a determination of the customer's existing service, a determination of the availability of new services and features that might meet the customer's needs, address verification, a determination of whether a site visit is required to establish or modify service, the scheduling of any appointment, the assignment of any new telephone numbers, and establishing a date for the commencement of service.

12. "Ordering" is the process of placing an order for telecommunications service. For purposes of this proceeding, ordering is the process by which AT&T places an order with Ameritech for the provision of either local service resale or unbundled network elements necessary for AT&T to deliver service to AT&T's local retail customers.

13. "Provisioning" is the process of implementing the order for telecommunications service, including initial order verification, firm order confirmation, the monitoring of service order status, and order completion. For purposes of this proceeding, provisioning is the process by which Ameritech implements an order from AT&T for a resold local service or unbundled network elements as part of AT&T's establishment of local retail service for its customers.

14. "Maintenance and repair" refer to the monitoring and fault management activities, including trouble reporting and the monitoring and correction of reported troubles, to assure proper functioning of local services.

15. In the case of local service resale and the purchase of unbundled network elements, "billing" refers to the processes by which Ameritech must record and transfer to AT&T the customer usage data and service element detail that AT&T needs to bill its retail customers for local service. Billing also includes, when AT&T uses a UNE local switching element to provide service, any information necessary to bill interconnecting carriers for either local exchange access services or other terminating local usage.

16. The establishment of efficient mechanisms and procedures for the exchange of information between the operations support systems of Ameritech and AT&T, or for that matter between Ameritech and other competitive local exchange carriers (CLECs), is absolutely essential for the development of meaningful competition in the provision of local services. When AT&T first enters local exchange service markets in Michigan on a large scale, its ability to provide local services to customers will be highly dependent upon its ability efficiently to obtain local services and unbundled network elements from Ameritech, which will depend in turn upon the efficient exchange of information between AT&T and Ameritech across all of the previously described OSS functions. Most of the necessary information for responding to initial service requests and for establishing, maintaining, and billing for service resides in the various operations support systems of Ameritech. Ameritech is thereby in a position to control the availability, accuracy and timeliness of information that is essential to AT&T's ability to compete.

NONDISCRIMINATORY ACCESS TO OPERATIONS SUPPORT SYSTEMS

17. In order to be an effective competitor in the provision of local services, AT&T must minimally be able to obtain the information in Ameritech's operations support systems with no less timeliness, accuracy, or ease of access than that experienced by Ameritech personnel. If, for example, a customer calling to inquire about obtaining service from AT&T cannot get timely answers to his/her questions because AT&T's customer service agent has difficulty obtaining accurate and timely information from Ameritech's operations support systems, then the customer will perceive AT&T's service as inferior, and there will be a very real risk the customer will not take service from AT&T, or will switch back from AT&T to Ameritech.

18. The FCC recognized the importance of nondiscriminatory access to operations support systems for the development of competition in its First Report and Order in Docket No. 96-98 where the Commission stated that:

> "[I]f competing carriers are unable to perform the functions of pre-ordering, ordering, provisioning, maintenance and repair, and billing for network elements and resale services in substantially the same time and manner that an incumbent can for itself, competing carriers will be severely disadvantaged, if not precluded altogether, from fairly competing. Thus providing nondiscriminatory access to these support systems functions, which would include access to the information such systems contain, is vital to creating opportunities for meaningful competition."[1]

I strongly agree with those statements.

[1] First Report and Order, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket No. 96-98 (released August 8, 1996), at ¶ 518.

19. In its August 8, 1996 order, the FCC ordered that "an incumbent LEC must provide nondiscriminatory access to their operations support systems functions for pre-ordering, ordering, provisioning, maintenance and repair, and billing" that is comparable to the access that is available to the LEC itself. (¶ 523)

20. In order to establish parity of access, Ameritech must demonstrate that its OSS interfaces provide (1) equivalence of information availability, (2) equivalence of information accuracy, and (3) equivalence of information timeliness. Ameritech apparently agrees with the critical nature of these tests as demonstrated by their proposal to measure exactly these parameters as part of showing their OSS access is nondiscriminatory (Mickens, Illinois Testimony, p.41). Beyond demonstrating attainment of these three conditions, Ameritech's OSS interface must be shown to be equally capable of supporting service delivered either through the resale of local services or through the use of unbundled network elements. Moreover each interface must demonstrate the ability to handle the transactional load reasonably expected to occur as the competitive marketplace develops.

21. Equivalent information availability means that Ameritech must deliver to the CLEC, to no lesser a degree than it does for its own employees all data necessary to support a specific transaction and the delivered data must be in useable formats and unambiguous to the recipient and not entail human intervention in order to acquire the data. The extent of human interaction is a genuine concern in that it raises the possibility of error interjection and slower

processing. Ameritech has stated that many of its processes are likely to involve extensive human intervention (Rogers, Response To AT&T Data Requests 2.32 and 2.33 In Illinois)

22. Equivalent information accuracy requires that the information exchange mechanism pass three related tests: First, the information exchanged must comply with an agreed upon data format and structure. Second, the exchanges must implement agreed upon business rules for interaction. Third, demonstrated end-to-end transaction integrity must exist. AT&T's experience is that Ameritech has focused exclusively upon the first aspect to the detriment of the later two.

23. Interfacing software must be prepared to receive, disassemble, transform and forward data to supporting business processes and systems. If the format and/or structure of the data do not match that for which the system was designed, the wrong activity might occur, or the intended processes may fail altogether. To avoid these problems, data format and structure must be agreed upon for all elements and properly implemented. National standards provide value in reducing costs and providing guidance in this area. Ameritech, however, has unilaterally elected to create its own interface specifications, which have been revised multiple times in the relatively short time that they have been available.

24. Establishing how information will be exchanged, in the context of business activities, is equally as important as specifying the format and structure of the data elements. Both parties using an interface must understand how data will be "packaged" within messages that will cross the interface, the identity of the data elements that will and will not be provided, the sequence of messages that will be exchanged, and the business activities that will occur in response to the agreed upon message sets. The process of achieving this understanding is referred to as establishing "business rules." Without these business rules, chaos will reign at the interface because the ILEC and CLEC will not be able to communicate with each other or actions, expected as the result of the information exchange, will be unclear. Reading of the specifications delivered by Ameritech will not provide insight to governing business rules as Ameritech has already stated (Mickens, Response to AT&T Data Request 2.39 in Illinois). Rather AT&T must rely upon Ameritech to disclose these business rules or must deduce them through trial and error during intersystem testing. AT&T is currently engaged in this testing for a subset of Ameritech's interfaces.

25. The integrity of each end-to-end transaction must be assured as the information flows through all supporting systems that must process the information. This flow must be tested through all stages, including the initiation of the transaction, movement of the data elements through the CLEC operations support systems, transmission of the information across the interface, processing of the data within Ameritech's operations support systems, and subsequent return of data to the CLEC if appropriate. The users of the interface must have confidence that the

information flow is predictable and subject to replication. AT&T has not completed this testing. Likewise, it is reasonable to conclude that no other CLEC has completed such testing because Ameritech's has indicated no CLECs are using the services resale interfaces (Rogers Illinois Testimony, pp. 10, 11, and 15) and the same is true for UNE support interfaces, with the exception of ordering unbundled loops (id., p.9). In fact, not even Ameritech uses these interfaces for its own local service operations (Rogers, Response to AT&T Data Request 2.40 in Illinois).

26. Assurance of end-to-end integrity typically entails the sending of comprehensive sets of test cases all the way through both parties' processes to validate that the expected exchange of information and business activity occurs. Load carrying capacity must also be established as part of assuring the end-to-end integrity of the interface. An interface that operates satisfactorily at low volume but "chokes" the flow of essential servicing information at market volumes will place the new entrants at a competitive advantage.

27. This testing process can be time consuming and tedious, but it is absolutely essential to enable quality customer servicing and to assure nondiscriminatory access. Ameritech simply claims that the performance will be nondiscriminatory "because the systems utilize the same underlying systems and data utilized by Ameritech" (Rogers, Response to AT&T Data Request 2.44 in Illinois) while totally discounting the fact that the queries submitted by the CLECs will not be handled in the same manner as are those submitted by Ameritech own personnel (Mickens, Response to AT&T Data Request 2.45b in Illinois).

28. Equivalent information timeliness requires two things. First, the elapsed time for a transaction, starting when an information request transaction is initiated until the time the agreed upon result is returned, is equivalent whether a CLEC or an Ameritech customer service agent is involved. If the CLEC customer service agent requests a telephone number from Ameritech, for example, the response time should be equivalent to that experienced by an Ameritech customer service agent making an equivalent request. Because Ameritech does not utilize these interfaces in support of its own local service operations, it is not clear how a CLEC could ever determine whether or not nondiscriminatory access is delivered by Ameritech.

29. Second, the information supplied to the CLEC must be of the same "vintage" or time of production that is available to Ameritech personnel. For example, if feature and service availability data is updated monthly for Ameritech personnel, then the CLECs should receive updates at the same time. Ameritech has yet to address even how performance for batch interfaces, where such periodic updates are delivered, will even be measured (Mickens, Response to AT&T Data Request 2.46e in Illinois).

30. Because each company likely will employ differing approaches to customer servicing, the sole use of traditional service performance measures directed at the end-customer experience is likely to be inadequate for assessing information interface performance. A new measurement will probably be required. Such a monitoring measure should be based on joint agreement, and may require Commission oversight to develop.

31. One possible approach for transaction-based interfaces would be to establish standards for round-trip elapsed time for messages sent across the CLEC-Ameritech interface. CLECs need the ability to monitor their own experience and determine whether or not equivalent timeliness exists with respect to what Ameritech provides to itself.

32. In the case of batch interfaces -- those where large quantities of data are accumulated and delivered as files -- the timeliness standard applied can be the identical frequency of update as is provided to Ameritech personnel. If the CLEC desires less frequent feeds, the CLEC should also have that option.

THE OSS INTERFACES PROPOSED BY AMERITECH

33. The OSS interfaces proposed by Ameritech do not meet these tests for parity of access. In the first place, the interfaces to several of Ameritech's essential pre-ordering operating support systems were still not deployed in the field or available to CLECs as of mid-December 1996. Even assuming that those interfaces have now been deployed, those interfaces have never been used or tested by any CLEC.

34. Second, the specifications for several of Ameritech's proposed OSS interfaces have been frequently revised and are still being revised or clarified by Ameritech, so that CLECs are not yet in a position to design their systems to interact with Ameritech's systems so as to enable the CLECs like AT&T to enter the local market on a large scale.

35. Third, because of these and other problems, neither Ameritech nor AT&T can determine at this time from actual use whether the access delivered by Ameritech's OSS

interfaces will be adequate and nondiscriminatory. Nondiscriminatory access is not established by declaration. It can only be established by demonstration. Moreover, in the limited cases where an interface has been tested by AT&T, the Ameritech interface has fallen far short of meeting the nondiscriminatory access tests that I have discussed.

36. Furthermore, the interfaces that Ameritech has delivered for testing have addressed predominantly total service resale. No mechanized interfaces have been made available for testing by AT&T that address service delivery through the UNE platform (a combination of the local loop element, the local switching element, and the common transport element that was requested by AT&T). Interfaces must be made available that will handle services resale, UNEs and combinations of UNEs.

37. The testimony submitted by Ameritech in this case is also not clear as to whether all of the OSS interfaces proposed by Ameritech are presently available to CLECs. In supplemental rebuttal testimony filed in Illinois on Friday, December 13, 1996, and submitted in this case on Monday, December 16, 1996, Ameritech's witness Mr. Rogers states that Ameritech's proposed interfaces for a number of pre-ordering functions, including access to customer service records, access to telephone number selection and assignment, due date selection and access to information regarding changes in service order status, are still "under development" and are only "scheduled for commercial deployment" in December 1996 (Rogers Illinois Testimony, pp. 5, 15, 26). Mr. Rogers also states that the interfaces required for the provisioning of resold service is still not complete (id. at 11).

38. Similarly, the affidavit of Ameritech's Mr. Dunny, submitted in this case on December 16, 1996, states that Ameritech's interfaces for the pre-ordering, ordering and provisioning functions "are currently being upgraded" and "will be made available . . . on or before January 1, 1997" (Dunny Aff., pp. 31-32).

39. The affidavit of Mr. Mickens, on the other hand, also filed by Ameritech on December 16, 1996, states that all of these OSS interfaces are currently deployed by Ameritech (Mickens Aff., pp. 16-17, 19-20).

40. Even assuming that these operations support systems interfaces have now been deployed by Ameritech, however, that does not mean that those interfaces are operational. For something to be operational, it must be capable of being used. Despite the claims that its interfaces are presently deployed, Ameritech does not contend that any CLEC has ever used its pre-ordering, ordering or maintenance interfaces for transacting business (see Rogers Illinois Testimony, p. 15).

41. Even if Ameritech has successfully deployed interfaces for access to these operations support systems, their operability, and particularly their ability to operate in a nondiscriminatory manner, has plainly not been demonstrated.

42. Moreover, for the reasons I will describe later, Ameritech does not have a measurement plan adequate to demonstrate the delivery of nondiscriminatory access to its operations support systems, and there is certainly no evidence that the OSS access promised by Ameritech will in fact be nondiscriminatory in the marketplace.

43. Nor is the lack of a sufficient measurement plan the only reason that I conclude that Ameritech's operational support systems access is not fully operational. Although Ameritech states that its interfaces are, or will be, operational, and many of its interfaces may be technically capable of transmitting and receiving bits and bytes in a particular format and syntax, I am not at all confident that nondiscriminatory access to OSS functionality will exist, or that CLECs will be able to fully utilize such functionality. AT&T is the only CLEC Ameritech identifies as having engaged in any form of testing of the operational support systems access (Rogers Illinois Testimony, p. 15), and the experience of AT&T certainly cannot be relied upon as a successful demonstration that nondiscriminatory access to OSS functionality is a reality today (see id. at 16-23 and Schedule 1).

44. In order to be truly available in any meaningful sense, an interface must be thoroughly tested and demonstrated to operate as intended under the conditions and volumes that are reasonably expected actually to occur in the marketplace. Thus Ameritech should be required to show not only that its proposed interfaces are deployed in the field, but that they have been shown to operate successfully with the electronic interfaces of other service providers at volumes of traffic that are reasonably anticipated to occur. Until that field testing has been done and operational experience gained, it is impossible to conclude that Ameritech has met its obligation to provide parity of access to its operations support systems.

THE INADEQUACY OF AMERITECH'S TECHNICAL SPECIFICATIONS

45. Although Ameritech has provided some limited technical specifications covering data elements and syntax for its proposed OSS interfaces to AT&T, those technical specifications do not answer all the technical or practical details that are required to establish a working interface (Mickens, Response to AT&T Data Request 2.39a in Illinois). The specifications certainly do not permit AT&T to field test the interface to determine whether it meets the three tests for parity that I discussed above.

46. The specifications serve only to narrow the areas requiring discussion. Subject matter experts from both companies will still need to work together to implement the interfaces. Technical specifications provide guidance, but they are often incomplete and subject to interpretation with respect to the applicable business rules. These gray areas can lead to major operational issues.

47. For example, Ameritech bases its service resale ordering interface on standards developed by the Ordering and Billing Forum (OBF) of the Alliance for Telecommunications Industry Solutions (ATIS). Within the relevant OBF standard, two specific messages exist for conveying customer order information. The 850 Message conveys the initial order information, and the 860 Message provides supplemental information. While data element content of the 860 Message is defined, there is no specific OBF guidance regarding the governing business rules. By that I mean the OBF does not say whether the 860 Message should convey only changed information or whether the 860 Message should convey the entire restatement of the order.

48. Ameritech's interpretation is that the 860 Message must convey only changed information, while AT&T's preference is to deliver a restated order in the 860 Message. Until the parties agree on a common treatment of the message, AT&T cannot efficiently send supplemental orders to Ameritech even though the supplements issued by AT&T comply with the EDI national standards for ordering, the standard with which Ameritech claims to be following. Until the parties agree on treatment of the message, therefore, the interface is not operational, for all practicality, for orders requiring a supplement.

49. Ameritech incorrectly claims that this problem lies with AT&T because the Ameritech use of the EDI 860 transaction "is consistent with its use in other industries" (Mickens Illinois Testimony, p. 10). I cannot attest to the use of the 860 transaction in other industries, but within the telecommunications industry it is AT&T's experience that NYNEX, BellSouth, US WEST, Southwestern Bell, Bell Atlantic, SNET, GTE, and Sprint have all accepted the treatment of the 860 transaction which AT&T requested of Ameritech.

50. The result of Ameritech's position, from the viewpoint of AT&T, is that the ordering interface is not yet fully operational and that nondiscriminatory access to that OSS functionality is not being delivered by Ameritech.

NONDISCRIMINATORY ACCESS MEASUREMENT

51. In order to demonstrate that nondiscriminatory access is available and being delivered to potential CLECs, Ameritech must show, through measured performance experience of a meaningful set of CLECs, that nondiscriminatory access is being delivered for all operations

support systems related to pre-ordering, ordering, provisioning, maintenance and repair, and all aspects of billing.

52. The FCC has specifically encouraged state commissions to adopt reporting requirements related to assurance of nondiscriminatory access. (¶ 311).

53. Appropriately defined and sufficiently robust sets of measurements are crucial to demonstrating that nondiscriminatory access to each OSS functionality is actually being delivered and that such nondiscriminatory access continues to be delivered on an on-going basis. Lack of a mechanism to monitor and, if necessary, ensure prompt re-establishment of nondiscriminatory access to OSS functionality will have a chilling effect on the emergence of meaningful competition in the provision of telephone exchange services. Nondiscriminatory access to OSS functionality, and to unbundled network elements in general, cannot merely be promised; it must be shown to exist across-the-board and monitored to assure it continues to be provided.

54. The delivery of nondiscriminatory access to Ameritech's operations support systems can only be verified and monitored by an appropriate measurement plan. Such a measurement plan is needed both to accomplish the initial validation and to provide on-going monitoring.

55. An acceptable measurement plan must embody at least four characteristics: (1) the plan must support statistically valid comparisons of CLEC experience to the experience of Ameritech's local service operations; (2) the plan must account for potential performance variations due to differences in service and activity mix; (3) the plan must monitor not only performance at

the service level, but at the interface level as well; and (4) the plan must be implemented and be producing results which demonstrate that nondiscriminatory access to OSS functionality is, indeed, being delivered across all interfaces and a broad range of resold services and unbundled network elements.

56. Although Ameritech has made some constructive proposals for a conceptual measurement plan, a substantial amount of additional work is necessary before any of the four criteria in the prior paragraph are satisfied.

57. As a first step, Ameritech should demonstrate that the measurement plan will gather and retain data in a manner that permits meaningful tests for statistically significant differences in performance. The measurement plan should permit each measure, if so desired, to be tested and a determination made, at a 95% confidence level, that the CLEC results are no worse than that experienced by Ameritech's own retail local service operations or any of its affiliates. The statistical test which determines a "no worse than" (rather than a test that only states you cannot conclude a difference exits) is important so that Ameritech Illinois can positively demonstrate the absence of discriminatory access to OSS functionality.

58. The ability to test performance and determine the absence of discrimination is probably the single most important purpose of the measurement plan. Unfortunately, Ameritech has offered no testimony regarding the statistical tests, if any, that it plans to employ to demonstrate that absence of discrimination. Ameritech, in fact, was non-responsive when asked to describe the

statistical testing applicable to its proposed measurement plan in Illinois (Mickens, Response to AT&T Data Request 2.46i in Illinois).

59. It is important that the measurement plan also account for service mix differences. When generalized measures are utilized, care must bc taken to assure that they are sufficiently discrete to permit meaningful comparisons to be made. When I say discrete, I mean that a capability must exist to group and compare performance measures along dimensions that reflect commonality of attributes likely to be correlated with expected differences in performance.

60. For example, installation intervals for complex business orders are likely to be substantially longer than the installation interval for single line residence basic local service. Therefore, a due date performance measure that combines the business and residence categories into a single reported result could be misleading.

61. The example below illustrates this point:

	Installation Interval (days)	**% Orders**	**wtd Component (days)**
Company 1			
RES SINGLE BASIC LOCAL	4	15%	0.60
SERVICE COMPLEX BUS	15	85%	12.75
Average Installation Interval			
			13.35
Company 2			
RES SINGLE LINE BASIC LOCAL SERVICE	7	60%	4.20
COMPLEX BUS	20	40%	8.00

Average Installation Interval

12.20

62. As can be seen from this preceding example, if only the average result across all services is compared, one would falsely conclude that Company 2's performance was superior to that of Company 1. In reality, however, Company 2 has worse performance for both categories of service. The difference in the average result is due to the differing product mix. It is safe to assume, at least early in the development of competition, that CLECs and Ameritech will have significantly differing product mixes. Thus, every effort should be made to disaggregate product level measures so that meaningful comparisons can be made.

63. AT&T proposes that the level of product detail outlined in Attachment I (previously submitted to the Illinois Commerce Commission as part of my supplemental testimony) should be established as the minimally acceptable level of product disaggregation for the Ameritech measurement plan. In addition, because new products will likely be introduced and others will decline and be withdrawn, the product detail should be periodically reviewed, probably annually, to assure that measures reported are meaningful. Reporting of measures at a lesser level of product detail would be acceptable, provided that the underlying data is maintained at a very granular service detail and, upon request and subject to the appropriate proprietary protection, a CLEC could sponsor an independent audit of metrics at the very discrete service level detail.

64. It is difficult to determine whether the proposed measurement plan of Ameritech addresses the issue of product mix variation from the limited amount of data supplied.

The prototype reports reflect only a very limited level of product disaggregation -- POTS, subrate, and high capacity services. Such a level of disaggregation is less detailed even than the level at which Ameritech details its date due commitments in the information supplied to potential resellers (Due Date Intervals, Ameritech Information Industry Services Resale, Issued by: Resale Support Staff, Revised September 30, 1996). Certainly these proposed levels of product detail are still too aggregated. Due to the lack of detail in the filed information, I can only assume that Ameritech attempted to partially address the impacts of product mix, that I discussed earlier, by comparing the metric to a "target" or an "agreed upon" level. Such an approach may be workable for internal purposes of a single company.

65. When comparisons between companies must be made for the purposes of determining nondiscrimination, however, that approach is inadequate. The comparison of CLEC performance to a target is useless for purposes of determining nondiscrimination unless both the CLEC and ILEC performance are reported in comparison to the same target level. Even making a comparison of both CLEC performance and Ameritech's performance to an identical target level and then reporting only the percentage not meeting the target provides very little information of value for purposes of determining nondiscrimination. Such comparisons may even be misleading, unless the entities being compared have identical, or at least very similar, deviations in their experiences.

66. The following example demonstrates this point, again using illustrative data:

Order	Installation Performance by Order (days) Company 1	Company 2
1	3	3
2	4	3
3	4	3
4	5	10
8	5	10
6	5	10
7	5	10
8	3	3
9	3	3
10	3	3
Average	4	5.8
Target	3	3
% Exceeding Target	60%	40%

67. In this preceding example, use of the "% exceeding target" figure would falsely lead an observer to the conclusion that Company 2 is achieving substantially better performance (in the case of this example, exceeding target is poorer performance). In fact, the performance for Company 2 when it is poor, is much, much worse than Company 1 and is never better than the best performance of Company 1. The wide variation in performance causes this situation and is the Achilles Heel of the use of "% exceeding target" measurement.